



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 21

Final Additional Airworthiness Design Standards: Advanced Avionics Under the Special Class (JAR-VLA) Regulations; Aquila Aviation by Excellence GmbH, Model AT01-100

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Issuance of airworthiness design standards.

SUMMARY: This document is an issuance of the final airworthiness design criteria for the inclusion of advance avionics with integrated electronic displays for the Aquila Aviation by Excellence GmbH AT01-100. These additional provisions are expansions of the existing JAR-VLA (Joint Aviation Requirements-Very Light Aircraft) and CS-VLA regulations as the current regulations do not adequately address these types of systems. The current regulations only address traditional federated gauges. The European Aviation Safety Agency (EASA) has not expanded the VLA regulations for these types of installation on these types of airplanes through EASA special conditions or new regulations. These Federal Aviation Administration (FAA) design criteria help initiate standards for this type of airplane without being over burdensome and to encourage EASA to follow suit.

DATES: Effective **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

FOR FURTHER INFORMATION CONTACT: Mr. Doug Rudolph, Aerospace Engineer, Standards Office (ACE-112), Small Airplane Directorate, Aircraft Certification Service, FAA; telephone number (816) 329-4059, fax number (816) 329-4090, email at doug.rudolph@faa.gov.

SUPPLEMENTARY INFORMATION: Any person may obtain a copy of this information by contacting the person named above under **FOR FURTHER INFORMATION CONTACT**.

Background

The original certification of the aircraft was done under the provisions of 14 CFR 21.29, as a § 21.17(b), special class aircraft, JAR-VLA, using the requirements of JAR-VLA Amendment VLA/92/01 as developed by the Joint Aviation Authority, and under Title 14 of the Code of Federal Regulations and two additional design criteria issued on September 2, 2003 (68 FR 56809).

The regulation applicable to the Amended Type Certificate (TC) approval is § 21.17(b). This section describes the regulatory basis for the approval of JAR-VLA and CS-VLA aircraft as a special class. Policy on this subject includes AC 23-11B and AC 21.17-3.

FAA policy expressed in AC 23-11B and AC 21.17-3 limits JAR-VLA and CS-VLA aircraft approved under § 21.17(b), to Day-VFR operations. Additionally, the FAA also published design criteria to allow expansion of the Aquila AT01-100 airplane to include Night-VFR as shown in NPRM 75 FR 32576. In conjunction with the expansion to Night-VFR operations integrated avionic displays are to be installed on the Aquila AT01-100 airplane.

EASA allowed the applicant to comply with CS-23 regulations for the integrated avionic displays installed on the Aquila AT01-100 airplane and made them part of the EASA certification basis, but did not publish these additional requirements as Special Conditions as they did for the Night-VFR expansion. The FAA's system does not allow this type of additional requirements, such as 14 CFR part 23 regulations, to be added to a special class, § 21.17(b) airplane without being publically noticed either through design criteria or expansion of the existing AC 23-11B. This is the reason for this design criteria notification.

The FAA has concluded that it is acceptable to allow advanced integrated avionic systems for certification on the Aquila Model AT01-100 under the special class amended TC project AT00651CE-A, provided the applicant complies with the below listed design criteria based on existing part 23 regulations at the described amendment levels.

Revisions to AC 23-11B and AC 21.17-3 will be made to address future airplanes that wish to allow these installations.

To satisfy the additional required design criteria for the Special Class (JAR-VLA) Regulations of § 21.17(b), Aquila Aviation by Excellence GmbH has agreed with the FAA to use the 14 CFR part 23 regulations for their Model AT01-100, as shown on the FAA G-1 Issue Paper. The applicable criteria for the installation of advanced avionic displays on the Aquila AT01-100 are as follows:

- 14 CFR 23.1307 at amendment 23-49, "Miscellaneous Equipment"
- 14 CFR 23.1311 at amendment 23-62, "Electronic Display Instrument Systems"
- 14 CFR 23.1321 at amendment 23-49, "Arrangement and visibility"
- 14 CFR 23.1359 at amendment 23-49, "Electrical System Fire Protection".

In addition to the above four regulations that will be used for design criteria, the FAA has also develop a method of compliance (MOC) issue paper for VLA-1309 for this type of installation.

Discussion of Comments

Existence of proposed airworthiness standards for acceptance under 14 CFR part 21 § 21.17(b), special class aircraft, JAR-VLA; the AQUILA Model AT01-100 was published in the Federal Register on September 6, 2013, (78 FR 54792). One comment was received from Mr. Alfred Schmiderer from Aquila GmbH. Mr. Schmiderer requested that showing of compliance to the added regulation 14 CFR 23.867(c) as shown in the NPRM, would require a total redesign of the aircraft concerning the lightning protection system. For a composite aircraft like AQUILA AT01-100 this would require, dependent on the results of a "zoning analysis", the installation of a protection system (meshing, strapping of components) which is far beyond the requirements of CS-VLA 857 "Electrical Bonding" to which compliance was shown in the basic certification. A redesign of that kind, postulated by a change of instruments from analog to electronic glass displays only without changing the kind of operation, is a burden too big for the benefit gained by the change. As the aircraft is still operated as before the change under VMC, safety in relation to lightning effects is not diminished by installing a "glass cockpit". An operation in IMC, which would to our mind require a lightning protection system in accordance with FAR 23.867(c), is not considered and not permitted (reference AFM). For these reasons AQUILA proposes to remove the added requirement 14 CFR 23.867 from the Airworthiness Design Standards as listed in the NPRM.

The FAA agrees with the commenter and has removed the added design criteria of 14 CFR part 23.867 at amendment 23-49. The final applicable design criteria for the installation of advanced avionic displays on the Aquila AT01-100 are the addition four 14 CFR part 23 regulations as shown above.

Applicability

As discussed above, these airworthiness design standards under the special class, JAR-VLA rule are applicable to the Aquila AT01-100 model and future JAR-VLA (CS-VLA) models on FAA TCDS A51CE.

Conclusion

This action affects only certain airworthiness design standards on Aquila AT01-100 model and future JAR-VLA model airplanes shown on FAA TCDS A51CE. It is not a standard of general applicability and it affects only the applicant who applied to the FAA for approval of these features on the airplane.

Citation

The authority citation for these airworthiness standards is as follows:

Authority: 49 U.S.C. 106(g), 40113 and 44701.

Issued in Kansas City, Missouri on October 28, 2013.

Earl Lawrence
Manager, Small Airplane Directorate
Aircraft Certification Service

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